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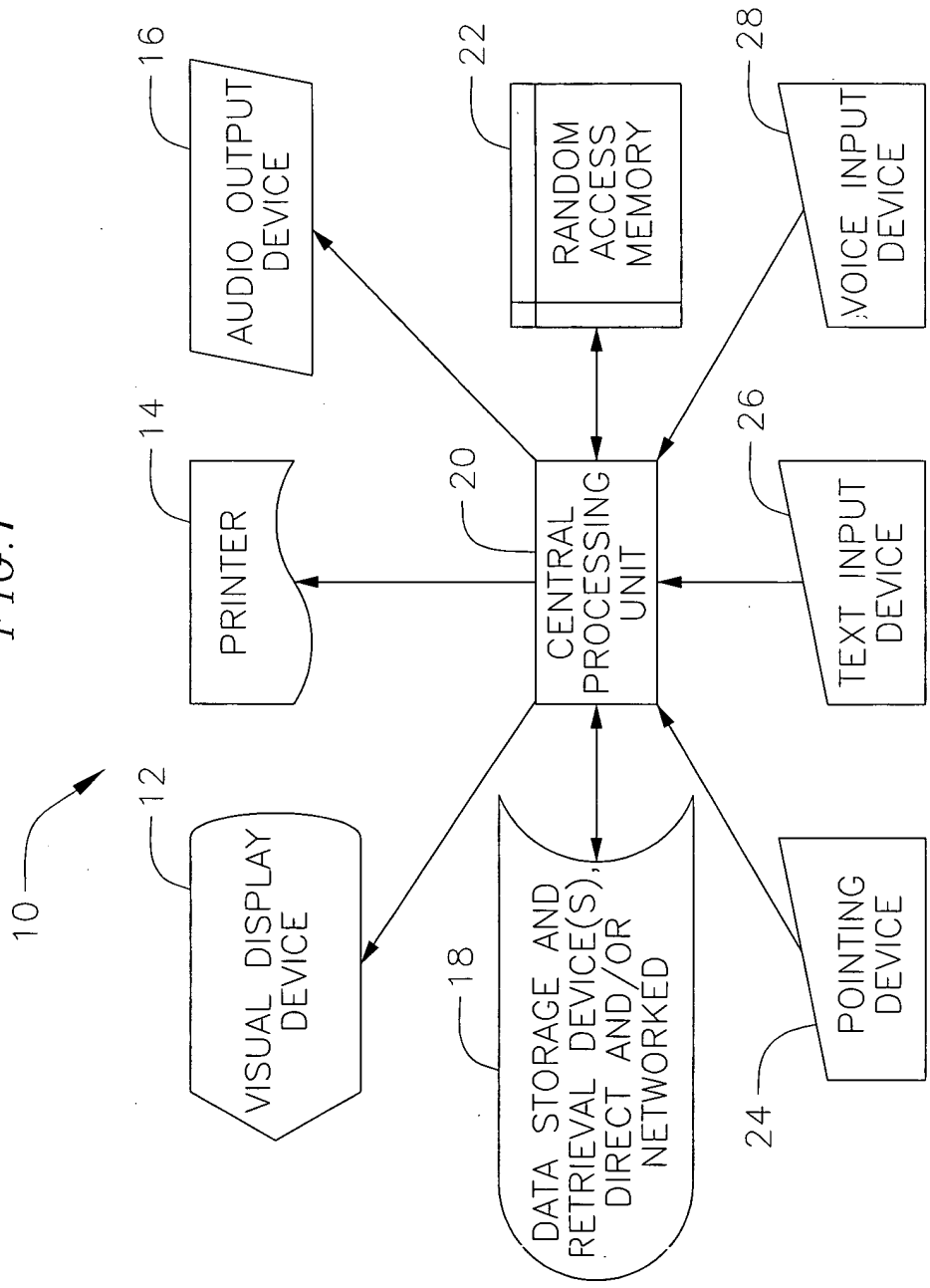
FIG. 1



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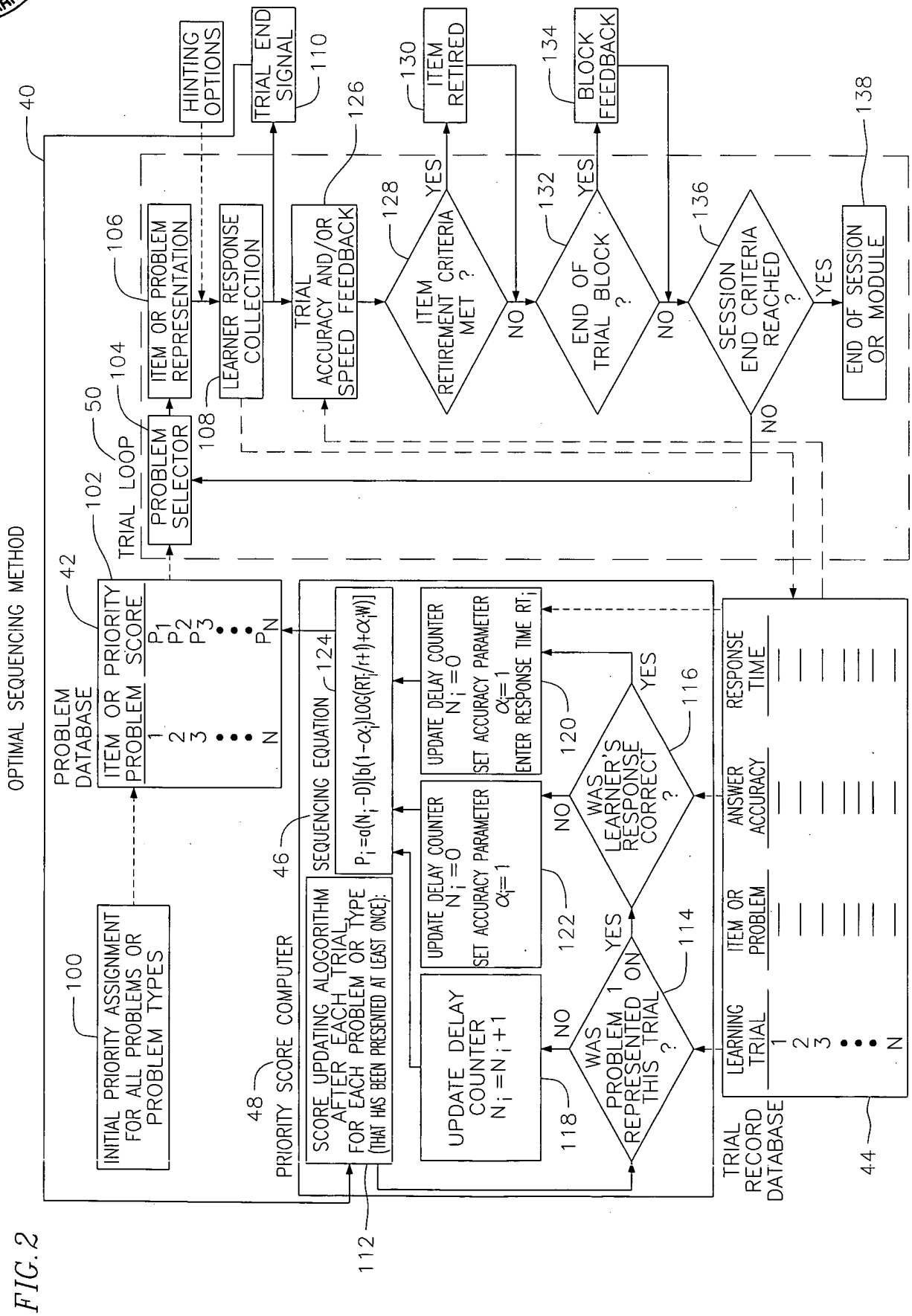

FIG. 2

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TABLE 1

FIG. 3

TRIAL	PROBLEM	RESPONSE	ACCURACY	TIME(SEC)	COMMENT
1	7X7=	"49"	CORRECT	3.5	FAST, CORRECT RESPONSE.
2	6X7=	"38"	WRONG	--	INCORRECT RESPONSE.
3	7X4=	"28"	CORRECT	18.4	CORRECT BUT SLOW.
4	12X7=	"72"	WRONG	--	
5	6X7=	"42"	CORRECT	11.7	RECURRENCE OF PROBLEM MISSED ON TRIAL 2.
6	9X9=	"72"	WRONG	--	
7	12X7=	"84"	CORRECT	10.4	RECURRENCE OF PROBLEM MISSED ON TRIAL 4.
8	5X8=	"40"	CORRECT	2.6	
9	9X9=	"80"	WRONG	--	
10	7X4=	"28"	CORRECT	6.1	RECURRENCE OF PROBLEM ANSWERED SLOWLY ON TRIAL 3.
11	6X3=	"18"	CORRECT	4.8	
12	9X9=	"74"	WRONG	--	RECURRENCE OF PROBLEM MISSED ON TRIAL 9.
13	3X4=	"12"	CORRECT	2.4	
14	6X7=	"32"	WRONG	--	RECURRENCE OF PROBLEM ANSWERED SLOWLY ON TRIAL 5.
15	9X9=	"81"	CORRECT	4.5	RECURRENCE OF PROBLEM MISSED ON TRIAL 12.
16	7X7=	"49"	CORRECT	2.7	RECURRENCE OF PROBLEM ANSWERED QUICKLY ON TRIAL 1.
17	12X7=	"84"	CORRECT	6.2	RECURRENCE OF PROBLEM ANSWERED SLOWLY ON TRIAL 7.
18	6X7=	"42"	CORRECT	5.1	RECURRENCE OF PROBLEM MISSED ON TRIAL 14.
19	3X10=	"30"	CORRECT	3.2	
20	7X4=	"28"	CORRECT	3.9	RECURRENCE OF TRIAL 10 PROBLEM.

SAMPLE SEQUENCE OF TRIALS USING THE SEQUENCING ALGORITHM. RELEVANT PARAMETER VALUES: a=.1, b=2, D=2, W=12, K=1. ARROWS INDICATE SELECTED EXAMPLES OFD PROBLEM RECURRENCES. (SEE TEXT.)

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Docket No.: 42055/SAH/K415
Inventor(s): Philip J. Kellman
Title: SYSTEM AND METHOD FOR ADAPTIVE LEARNING
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FIG. 4

PROBLEM	TRIAL 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
7X7=	(1)	-.088	0	.088	.176	.264	.352	.44	.528	.616	.704	.792	.88	.096	1.06	(1.14)	.075	.151	.226	.30
6X7=	1	(1)	-1.2	0	(1.2)	-.148	0	.148	.296	.444	.592	.74	.888	(1.04)	-1.2	0	.12	(2.4)	.11	.22
7X4=	1	1	(1)	-.2	0	.202	.404	.606	.808	(1.01)	-.129	0	.129	.258	.387	.516	.645	.774	.903	(1.03)
12X7=	1	1	1	(1)	-1.2	0	(1.2)	-.158	0	.158	.316	.474	.632	.79	.948	1.10	(1.26)	.123	.245	.358
9X9=	1	1	1	1	1	(1)	-1.2	0	(1.2)	-1.2	0	(1.2)	-1.2	0	(1.2)	.102	.204	.307	.409	.511
5X8=	1	1	1	1	1	1	1	(1)	.07	.14	.21	.28	.35	.42	.49	.56	.63	.70	.77	.85
6X3=	1	1	1	1	1	1	1	1	1	1	(1)	.106	.212	.318	.424	.530	.636	.742	.848	.954
3X4=	1	1	1	1	1	1	1	1	1	1	1	1	(1)	.068	.137	.205	.273	.341	.409	.477
3X10=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(1)	.083
8X4=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4X12=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3X9=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8X7=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11X5=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6X8=	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
⋮																				

PRIORITY SCORES BY TRIAL FOR SAMPLE SEQUENCE IN FIGURE 3. COLUMNS INDICATE TRIALS; ROWS SHOW A PARTIAL LIST OF PROBLEMS IN THE DATABASE. CIRCLED PRIORITY SCORES INDICATE THE PROBLEM CHOSEN BY THE ALGORITHM FOR THAT TRIAL. PARAMETER VALUES: a=.1; b=2; W=12; D=2; k=1; r=2.

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FIG. 5

TRIAL	PROBLEM	RESPONSE	ACCURACY	TIME(SEC)	COMMENT
		RESPONSE			
1	CAMINO	"ROAD"	CORRECT	3.5	FAST, CORRECT RESPONSE.
2	MARTES	"MARCH"	WRONG	--	INCORRECT RESPONSE.
3	DOS	"TWO"	CORRECT	18.4	CORRECT BUT SLOW.
4	VERDE	"DON'T KNOW"	WRONG	--	
5	ANARANJADO	"ANGEL"	WRONG	--	
6	MARTES	"TUESDAY"	CORRECT	15.0	RECURRENCE OF PROBLEM MISSED ON TRIAL 2.
7	ABRIL	"APRIL"	CORRECT	10.4	
8	FACIL	"EASY"	CORRECT	2.6	
9	VERDE	"GREEN"	CORRECT	9.7	RECURRENCE OF PROBLEM MISSED ON TRIAL 4.
10	ANARANJADO	"APPLE"	WRONG	--	RECURRENCE OF PROBLEM MISSED ON TRIAL 5.
11	VIERNES	"FRIDAY"	CORRECT	4.8	
12	AZUL	"BLUE"	WRONG	--	
13	DOS	"TWO"	CORRECT	2.4	RECURRENCE OF PROBLEM ANSWERED SLOWLY ON TRIAL 3
14	NOVIEMBRE	"NOVEMBER"	CORRECT	8.6	
15	ANARANJADO	"ORANGE"	CORRECT	11.3	RECURRENCE OF PROBLEM MISSED ON TRIAL 10.
16	CERO	"ZERO"	CORRECT	2.7	
17	CAMINO	"ROAD"	CORRECT	6.2	RECURRENCE OF PROBLEM ANSWERED QUICKLY ON TRIAL 1
18	MARTES	"TUESDAY"	CORRECT	5.1	RECURRENCE OF PROBLEM ANSWERED SLOWLY ON TRIAL 3
19	HIJA	"DAUGHTER"	CORRECT	3.2	
20	EMPUJAR	"ORANGE"	WRONG	--	

SAMPLE SEQUENCE OF TRIALS USING THE SEQUENCING ALGORITHM WITH PARAMETERS SET TO FAVOR INTRODUCTION OF NEW PROBLEMS: a=.1, b=1.5, D=2, r=2, W=6, K=1.2

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FIG. 6

PROBLEM	TRIAL 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CAMINO	(1.2)	−.09	0	.09	.18	.27	.37	.46	.55	.64	.73	.82	.92	1.01	1.1	1.19	(1.28)	−.09	0	.09
MARTES	1.2	(1.2)	−0.6	0	0.6	(1.2)	−0.14	0	.14	.28	.42	.56	.70	.84	.98	1.11	1.25	(1.39)	−.08	0
DOS	1.2	1.2	(1.2)	−0.16	0	.16	.32	.49	.65	.81	.97	1.13	(1.3)	−.12	0	.12	.25	.37	.49	.61
VERDE	1.2	1.2	1.2	(1.2)	−0.6	0	.6	1.2	(1.8)	−0.12	0	−0.12	.23	.345	.46	.58	.69	.81	.92	1.04
ANARANJADO	1.2	1.2	1.2	1.2	(1.2)	−0.6	0	.6	1.2	(1.8)	−0.6	0	.6	1.2	(1.8)	−.12	0	.12	.25	.37
ABRIL	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−.08	0	0.8	.17	.25	.34	.42	.51	.59	.68	.76	.85	.93
FACIL	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−0.9	0	0.9	.18	.27	.37	.46	.55	.64	.73	.82	.92
VIERNES	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−0.16	0	.16	.33	.49	.66	.82	.99	1.15
AZUL	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−0.7	0	.07	.13	.20	.26	.33	.40
NOVIEMBRE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−.11	0	.11	.22	.33	.44
CERO	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−0.9	0	0.9	.19
HIJA	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)	−0.6
EMPUJAR	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	(1.2)
AMARILLO	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
LUNES	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
ROSADO	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

PRIORITY SCORES BY TRIAL FOR SAMPLE SEQUENCE IN FIGURE 5. COLUMNS INDICATE TRIALS; ROWS SHOW A PARTIAL LIST OF PROBLEMS IN THE DATABASE. CIRCLED PRIORITY SCORES INDICATE THE PROBLEM CHOSEN BY THE ALGORITHM FOR THAT TRIAL. PARAMETER VALUES: a=.1; b=1.5; W=6; D=2; k=1.2; r=2.

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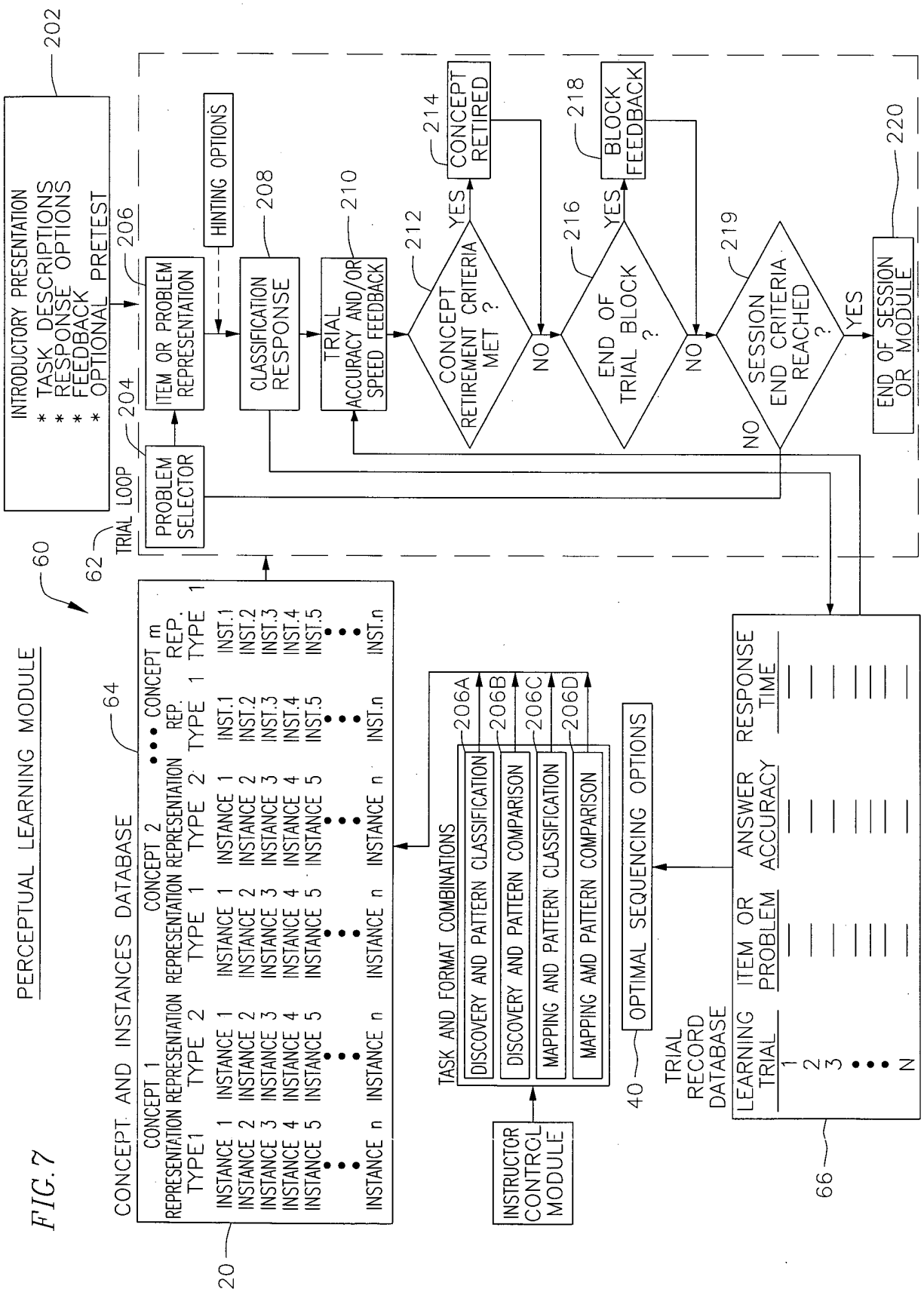

FIG. 7

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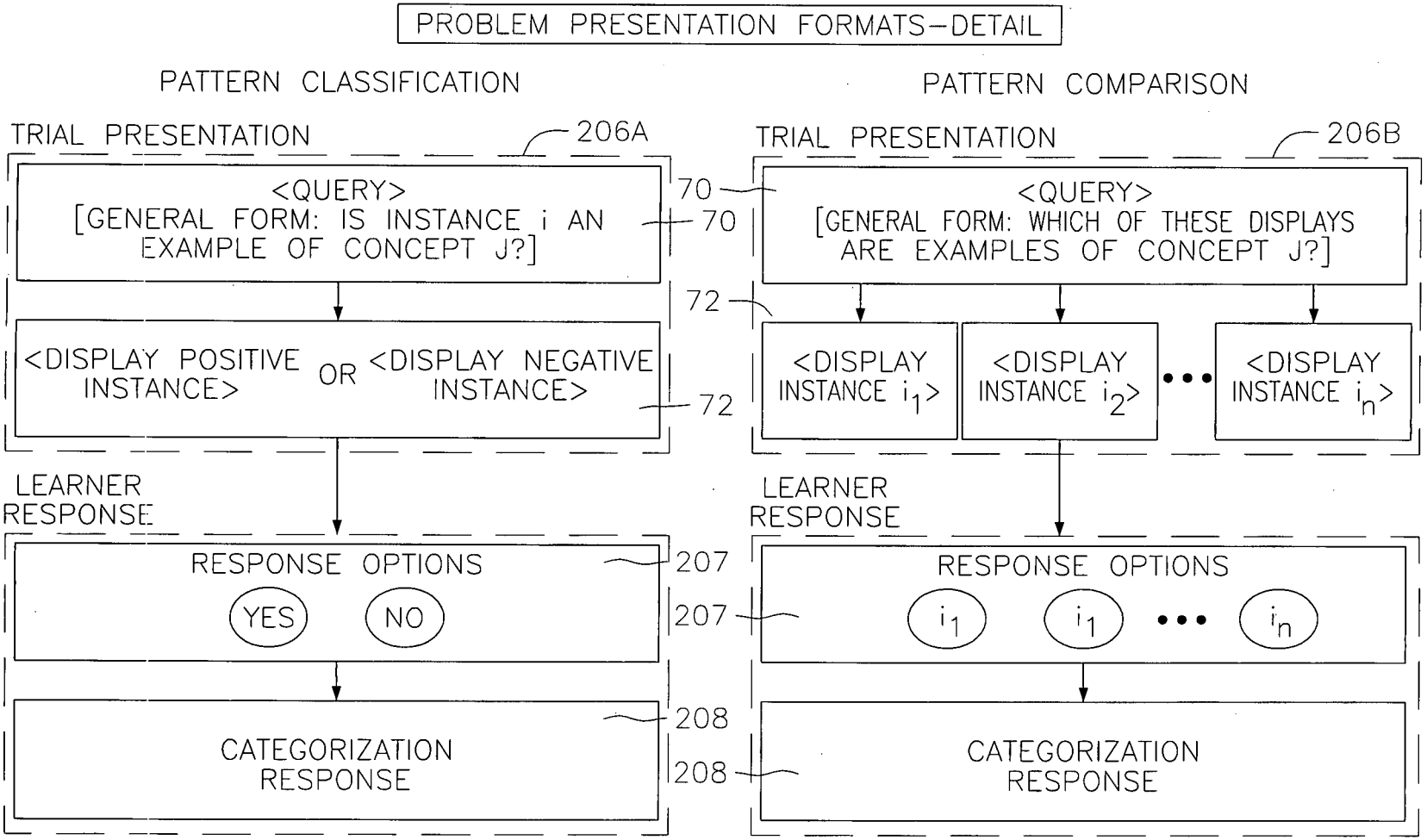
FIG. 8

PERCEPTUAL LEARNING SYSTEM:
STRUCTURAL DISCOVERY VARIANT



Attorney: Art Hasan
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FIG. 9

PERCEPTUAL LEARNING SYSTEM:
STRUCTURE MAPPING VARIANT

PROBLEM PRESENTATION FORMATS—DETAIL

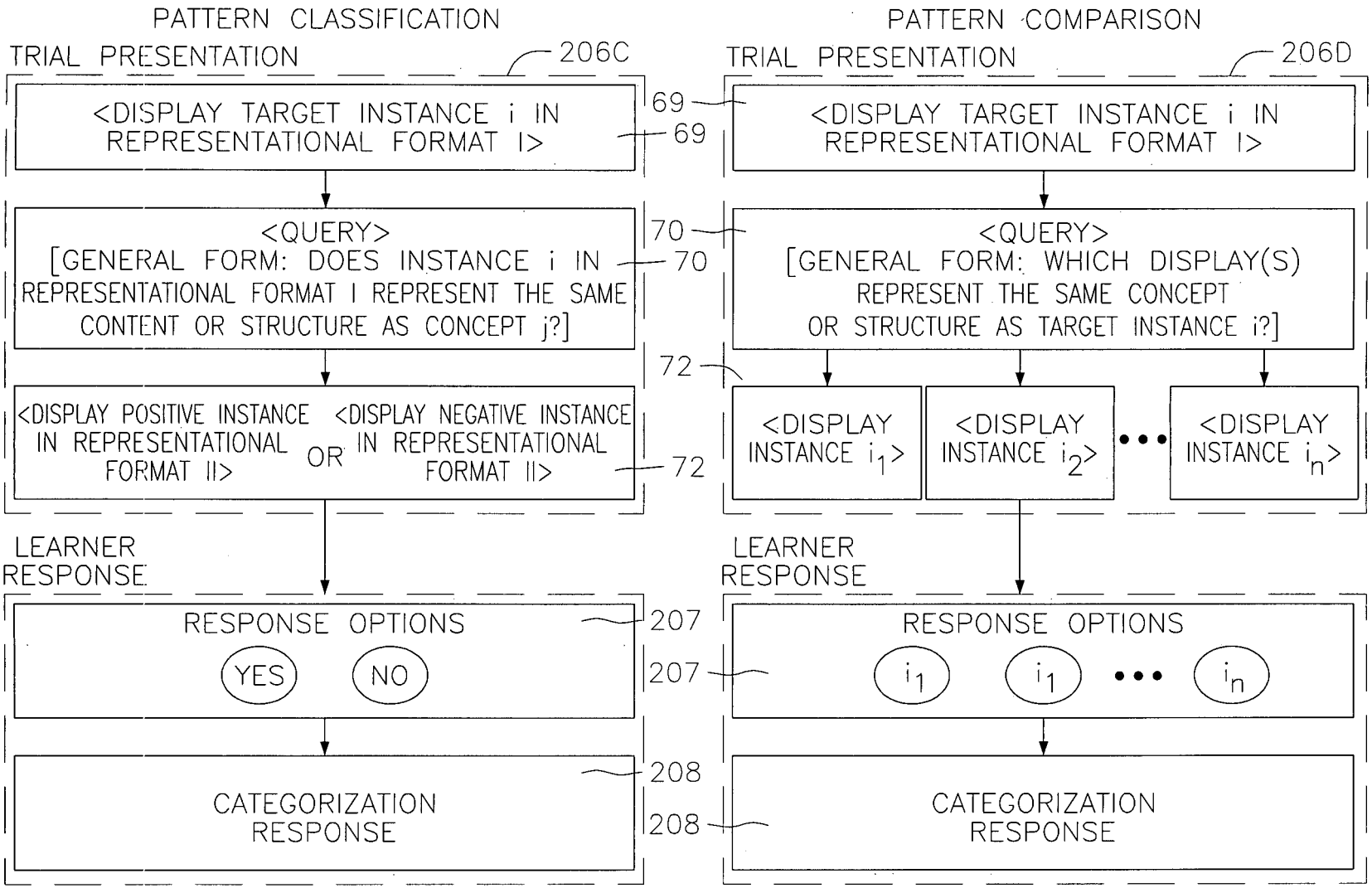

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FIG. 10

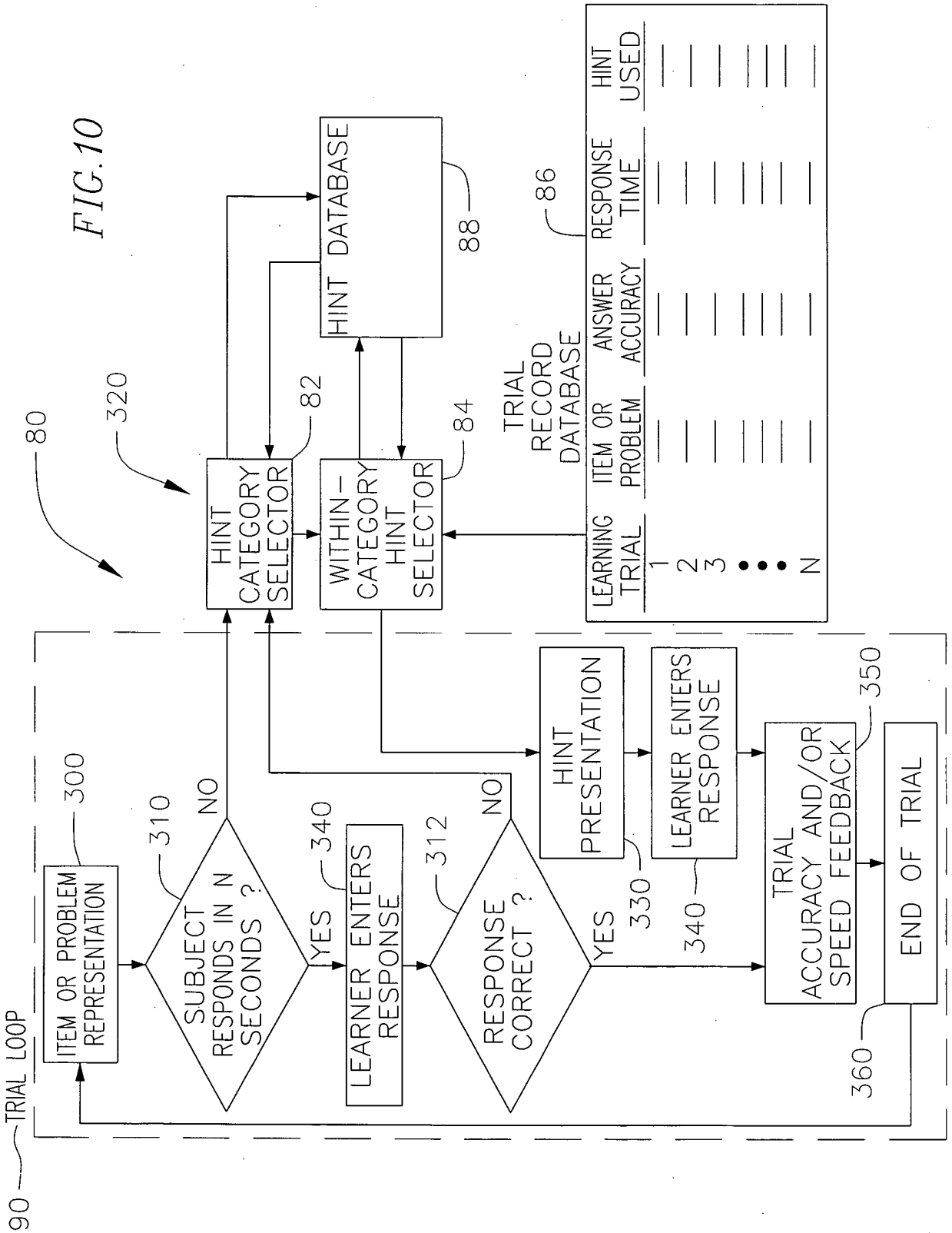

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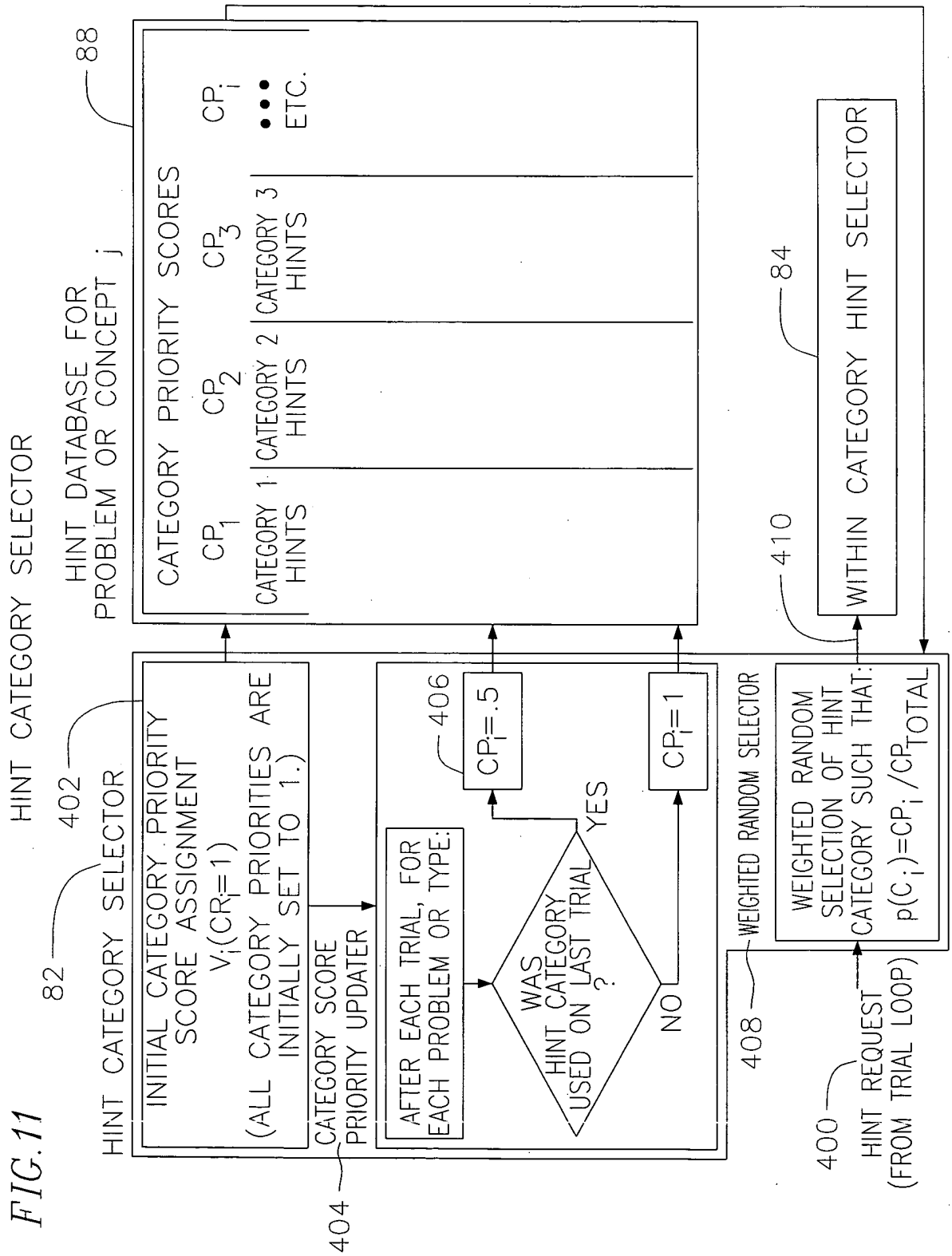
FIG. 11



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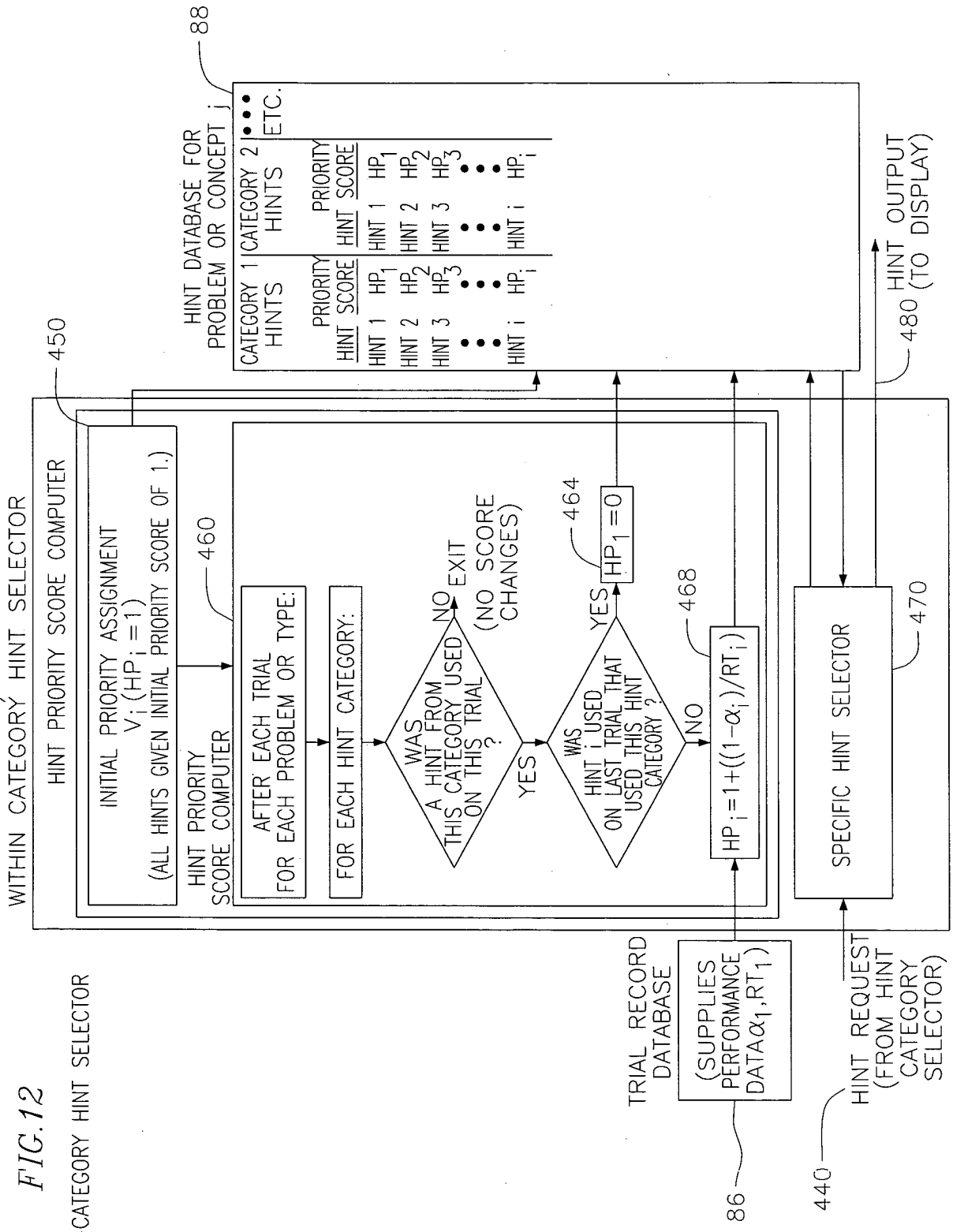

FIG.12
WITHIN-CATEGORY HINT SELECTOR